

**ORDER**

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

8130.29

4/23/02

**SUBJ: ISSUANCE OF A SPECIAL AIRWORTHINESS CERTIFICATE FOR  
SHOW COMPLIANCE FLIGHT TESTING**

---

**1. PURPOSE.** This order clarifies airworthiness certification requirements for conducting flight testing under § 21.191(b) of Title 14, Code of Federal Regulations (14 CFR) to show compliance with airworthiness regulations for approval of a design change. The procedures in this order apply only to U.S.-registered aircraft with a current standard airworthiness certificate and are to be used by all Aircraft Certification Service (AIR) engineers, inspectors, and flight test pilots; all Flight Standards Service (AFS) inspectors; and any appropriately authorized AIR or AFS designees. The order focuses on three areas: (1) early communication with the applicant regarding show compliance requirements, (2) early Federal Aviation Administration (FAA) determination of whether flight testing to show compliance with airworthiness regulations and issuance of a special airworthiness certificate is required, and (3) the aviation safety inspector (ASI)'s or designee's role in reinstating the standard airworthiness certificate.

**2. DISTRIBUTION.** This order is distributed to the Washington headquarters branch levels of the Aircraft Certification Service, Flight Standards Service, and the Regulatory Support Division; to the Aviation System Standards office; to the branch level in the Aircraft Certification Service directorates and regional Flight Standards Service divisions; to all aircraft certification offices; to all manufacturing inspection district offices and manufacturing inspection satellite offices; to all certificate management offices; to all flight standards district offices; to the Aircraft Certification Branch and Flight Standards Branch at the FAA Academy; to the Brussels Aircraft Certification Division and Flight Standards staff; to applicable representatives of the Administrator; and to all international field offices.

**3. AUTHORITY TO CHANGE THIS ORDER.** The issuance, revision, or cancellation of the material in this order is the responsibility of the Production and Airworthiness Division (AIR-200).

**4. BACKGROUND.** Under § 44704(d) of Title 49, United States Code (U.S.C.), and 14 CFR § 21.183, the FAA issues a standard airworthiness certificate when the Administrator finds that an aircraft conforms to its type certificate (TC). When an applicant for a change in type design alters an aircraft in accordance with a proposed type design change, a flight test may be required to demonstrate compliance with airworthiness regulations. However, the altered aircraft is no longer in compliance with its TC; therefore, the aircraft does not have an effective airworthiness certificate under which to conduct the flight test. In these cases, the FAA may issue a special airworthiness certificate in the experimental category for showing compliance with airworthiness regulations. (See appendix 1 to this order, Office of Chief Counsel Legal Interpretation, March 8, 2000.)

---

Distribution: A-W (IR/FS/VN) -3; A-X (CD/FS) -3; A-FFS-0 (LTD); A-FAC-0 (ALL);  
AMA-220 (10 copies); AMA-250 (10 copies); AFS-600 (3 copies); AVR-20  
(ALL); AEU-100/200; A-FDR-1D; ANM-108B (18 copies)

Initiated By: AIR-200

**5. DEVIATIONS.** Adherence to the procedures in this order is necessary for uniform administration of this directive material. Any deviations from this guidance material must be coordinated and approved by AIR-200. If a deviation becomes necessary, the FAA employee involved should ensure the deviations are substantiated, documented, and concurred with by the appropriate supervisor. The FAA employee involved also submits the deviation to AIR-200 for review and approval. The limits of Federal protection for FAA employees are defined by Title 28 U.S.C. § 2679.

**6. PROCEDURES.** When application for a special airworthiness certificate for show compliance flight testing is made, the aircraft certification office (ACO) schedules an early familiarization meeting to discuss limitations and conditions surrounding the intended modification to the aircraft and to determine methods for demonstrating compliance with airworthiness regulations. The applicant, applicable manufacturing inspection field offices, flight standards district offices (FSDO), and ACO personnel involved in the process participate in the familiarization meeting. The familiarization meeting does not have to be in person; a meeting by telephone or e-mail is sufficient.

**NOTE: The FAA and Industry Guide to Product Certification and FAA Order 8130.2, Airworthiness Certification of Aircraft and Related Products, are sources of guidance during this process.**

a. The applicant must present a data package to the appropriate ACO as defined in FAA Order 8110.4, Type Certification. The applicant's package should enable the ACO project engineer to determine whether flight testing to show compliance with airworthiness regulations is necessary or whether other means, such as analysis and/or ground testing, could be used instead. Analysis or ground testing may be based on new data or on data the FAA previously approved in another circumstance so similar that the FAA can determine that the airworthiness regulations will be complied with in the current circumstance. It is important to emphasize that changes to the type design require flight testing only when other means cannot show full compliance with airworthiness regulations.

b. During the initial approval phase for a change in type design, the ACO project engineer determines whether flight testing to show compliance with airworthiness regulations is required.

c. The ACO project engineer creates a file for the project as defined in Order 8110.4. The final results (type inspection report or supplemental type inspection report, part 2) of the flight test to show compliance with airworthiness regulations, if required, are included in the file.

d. If compliance with airworthiness regulations can be shown through analysis and/or ground testing, there is no need for flight testing to show compliance with airworthiness regulations or issuance of a special airworthiness certificate in the experimental category.

e. If the applicable airworthiness regulations specifically require flight testing or if the ACO project engineer determines that analysis and/or ground testing cannot show full compliance, the following steps are taken:

(1) The ACO project engineer informs the applicant that a special airworthiness certificate in the experimental category is required before conducting flight testing to show compliance with airworthiness regulations.

(2) The ACO project engineer informs the applicant that any research and development (R&D) flight testing performed before issuance of a type inspection authorization (TIA) for show compliance flight testing must be performed in accordance with § 21.191(a). The procedures in Order 8130.2 apply to the issuance of a special airworthiness certificate in the experimental R&D category under § 21.191(a).

**NOTE: If a multipurpose experimental airworthiness certificate (for example, R&D/show compliance) is to be used, it will be in accordance with Order 8130.2.**

(3) The responsible manufacturing inspection field office informs the applicant of the requirements outlined in paragraphs 6e(3)(a) through (d) below for application of a special airworthiness certificate in the experimental category to show compliance with airworthiness regulations and for reinstatement of the standard airworthiness certificate. The manufacturing inspection field office also explains to the applicant that failure to comply with these requirements impacts the standard airworthiness certificate reinstatement process.

(a) The applicant must ensure the aircraft is in compliance with all of the airworthiness regulations for its current standard airworthiness certificate.

(b) The applicant must complete and submit to the ASI or designee FAA Form 8130-6, Application for Airworthiness Certificate, to request a special airworthiness certificate in the experimental category to show compliance with airworthiness regulations.

(c) The applicant must continue to comply with the existing approved maintenance, preventive maintenance, rebuilding, and alteration programs in effect under the aircraft's current standard airworthiness certificate. The ASI or designee includes this requirement in the operating limitations issued with the special airworthiness certificate in the experimental category to show compliance with airworthiness regulations.

(d) The applicant must surrender the aircraft's standard airworthiness certificate to the ASI or designee so that it can be held in suspension by the responsible manufacturing or flight standards inspection field office. The owner or applicant does not retain the suspended standard airworthiness certificate.

(4) Once the aircraft type design has changed or a TIA has been issued, the ASI or designee issuing the special airworthiness certificate in the experimental category for flight testing—

(a) Removes and holds the standard airworthiness certificate in suspension for subsequent reinstatement. If the applicant's need for the special airworthiness certificate to show compliance with airworthiness regulations exceeds 30 days, the ASI or designee evaluates the need to ensure it is valid; the ASI or designee reevaluates the need every 30 days thereafter until the show compliance process is complete. If the need is valid, no change is required. If the need is not valid, the ASI or designee advises the applicant that the standard airworthiness certificate will be surrendered and that the applicant must apply for a new standard airworthiness certificate following the requirements of Order 8130.2. The total time duration of the special airworthiness certificate will not exceed the requirements of § 21.181.

(b) Records the following entries in the aircraft maintenance records (logbook) as described in paragraphs 6e(4)(b)1 and 2 below. These entries streamline the reinstatement of the standard airworthiness certificate.

**1** Explain the reason for issuance of the special airworthiness certificate (for example, for performing flight testing to show compliance with airworthiness regulations).

**2** Provide all information that expedites reinstatement of the standard airworthiness certificate (for example, type of modification and/or alteration performed).

(c) Issues basic operating limitations. The ASI or designee consults the procedures in Order 8130.2 for the applicable limitations.

(5) After flight testing has been completed and either the aircraft has been returned to its original configuration or the FAA approves the change in type design in writing (supplemental type certificate (STC), amended TC, FAA letter), the ASI or designee reinstates the suspended standard airworthiness certificate. The ASI or designee—

(a) Enters the following statement on Form 8130–6, FAA CODING block: “Do Not Code Per FAA Order 8130.29.” This ensures that the Aircraft Registration Branch (AFS–750) does not change the aircraft airworthiness status in the computer data. The application is then forwarded to AFS–750 with the terminated special airworthiness certificate attached.

**NOTE: This is the same Form 8130–6 submitted for issuance of the special airworthiness certificate in the experimental category for flight testing.**

(b) Requires only the documentation and/or inspections necessary to confirm what has occurred since the aircraft was modified and until the standard airworthiness certificate is reinstated. These requirements are sufficient unless the ASI or designee can justify and document the need for further inspection.

(c) Makes a signed and dated entry in the aircraft maintenance records fully explaining what has occurred, and includes the following statements:

**1** “I find this aircraft meets the requirements for the reinstatement of the original standard airworthiness certificate and the inspection was performed based on all installations and modifications related to *[insert STC number, amended TC number, or other form of project description]*, performed from *[insert date the modification(s) was first installed]* to *[insert current date]*.”

**2** “This certification process does not replace or change the dates or times of scheduled inspection requirements (for example, annual or 100-hour inspections). The next inspection is due *[insert date]*.”

(d) Ensures copies of all airworthiness certificates (standard and special) are attached to the completed type inspection report and forwards that type inspection report to the ACO.

(6) Once the ACO receives all relevant documentation, the ACO creates a file for the project. The file includes the application and all related correspondence, data, and the final results (type inspection report or supplemental type inspection report) of the flight test to show compliance with airworthiness regulations, if required.

**7. OPERATIONAL CHECK FLIGHTS OF FAA-APPROVED DATA.** Operational check flights do not require a special airworthiness certificate in the experimental category. The term “operational check flight” (14 CFR § 91.407(b)) includes flight tests performed to check installation and/or operation of an approved STC, amended TC, or any other FAA-approved data after installation and return to service. Operational check flights, when required, are performed under the current standard airworthiness certificate. Their purpose is to ensure the approved modification and/or alteration functions properly and does not adversely affect aircraft operation. They do not replace the requirements for a flight test to show compliance with airworthiness regulations. (See appendix 1 to this order, Office of Chief Counsel Legal Interpretation, March 8, 2000.)

**8. FOREIGN-REGISTERED AIRCRAFT.** Foreign-registered aircraft are ineligible for special airworthiness certificates (§ 21.173); therefore, the procedures in this order are not applicable to foreign-registered aircraft involved in flight testing to show compliance with airworthiness regulations. Consult the paragraphs in Order 8130.2 that refer to the issuance of a special flight authorization for a foreign-registered aircraft.

**9. FOREIGN AIRSPACE.** The foreign civil aviation authority must be contacted when flight testing of U.S.-registered aircraft is to be performed in foreign airspace, and all of the foreign civil aviation authority’s requirements must be complied with.

**10. CONCLUSION.** AIR directorate managers and AFS managers must ensure this order is followed in a standard and consistent manner by FAA field offices and their designees. This order has been reviewed by and coordinated through the Aircraft Maintenance Division, AFS-300. This order supersedes any previous guidance on this subject.

**11. DIRECTIVE FEEDBACK.** Any deficiencies found, clarifications needed, or improvements suggested regarding the content of this order will be forwarded (written or electronically) for consideration to the Aircraft Certification Service, Automated Systems Branch, AIR-520, Attention: Directives Management Officer. FAA Form 1320-19, Directive Feedback Information, is located on the last page of this order for your convenience. A copy may be forwarded to the Production and Airworthiness Division, AIR-200, Attention: Comments to Order 8130.29. If an interpretation is urgently needed, you may contact AIR-200. Always use Form 1320-19 to follow up each verbal conversation.

s/s  
Frank P. Paskiewicz  
Manager, Production and  
Airworthiness Division, AIR-200



**APPENDIX 1. OFFICE OF CHIEF COUNSEL LEGAL INTERPRETATION**  
**March 8, 2000**

- 1.** Section 21.181(a)(1) of Title 14, Code of Federal Regulations (14 CFR) states that a standard airworthiness certificate remains effective as long as maintenance, preventive maintenance, and alterations of the aircraft are performed in accordance with 14 CFR parts 43 and 91. Section 91.407(a)(1) states that an aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration may not be operated unless it has been approved for return to service by a person authorized under § 43.7, and the maintenance record entry required by § 43.9 or § 43.11 has been made. Therefore, a standard airworthiness certificate for an aircraft that has undergone alteration is not effective until the aircraft is returned to service in accordance with part 43.
- 2.** When the applicant alters an aircraft in accordance with the proposed change in type design, a flight test of the altered aircraft may be required in order to show compliance with the applicable airworthiness requirements. If required, a successful flight test is necessary for the FAA to approve the applicant's data. The flight test to show compliance is performed after alterations are made to the aircraft, but before the aircraft is returned to service; thus, there is no effective airworthiness certificate for the altered aircraft unless the FAA issues an experimental airworthiness certificate. The FAA issues that experimental certificate under § 21.191(b), *Experimental certificates for showing compliance with regulations*.
- 3.** There is a difference between the flight test for showing compliance with regulations and the "operational flight check" required by § 91.407(b). Paragraph (a) of § 91.407 prohibits all persons from operating an altered aircraft prior to return to service; in contrast, paragraph (b) addresses operation of the aircraft with passengers aboard. Thus, paragraph (b) of § 91.407 is premised on the operator of the aircraft complying with paragraph (a), and the flight test required by paragraph (b) is conducted *after* the aircraft is returned to service. After the aircraft is returned to service, the standard airworthiness certificate is effective, and there is no need for an experimental airworthiness certificate to be issued for the operational flight check.







U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Directive Feedback Information

Please submit any written comments or recommendations for improving this directive, or suggest new items or subjects to be added to it. Also, if you find an error, please tell us about it.

Subject: Order \_\_\_\_\_

To: Directive Management Officer, \_\_\_\_\_

*(Please check all appropriate line items)*

An error (procedural or typographical) has been noted in paragraph \_\_\_\_\_ on  
page \_\_\_\_\_.

Recommend paragraph \_\_\_\_\_ on page \_\_\_\_\_ be changed as follows:  
*(attach separate sheet if necessary)*

In a future change to this directive, please include coverage on the following subject  
*(briefly describe what you want added):*

Other comments:

I would like to discuss the above. Please contact me.

Submitted by: \_\_\_\_\_ Date: \_\_\_\_\_

FTS Telephone Number: \_\_\_\_\_ Routing Symbol: \_\_\_\_\_